

PAT-NO: JP405102338A

DOCUMENT-IDENTIFIER: JP 05102338 A

TITLE: STRUCTURE OF CIRCUIT BOARD

PUBN-DATE: April 23, 1993

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APPL-NO: JP03260061

APPL-DATE: October 8, 1991

INT-CL (IPC): H01L023/12, H05K001/02

US-CL-CURRENT: 257/675, 257/706 , 257/720

ABSTRACT:

PURPOSE: To easily take out the heat which occurs when arranging an integrated circuit directly on a circuit board, and connecting a wire for mounting, and cheapen the cutting of a plated lead for electrolytic plating at the same time.

CONSTITUTION: For an integrated circuit, resin sealing 5 is performed after being arranged on a circuit board and after preforming the wire bonding 4. Hereupon, an opening 3 with a size capable of holding the integrated circuit 2 is opened in the contact section with the integrated circuit of the circuit board 1. The integrated circuit is allowed to touch directly outside from this opening. It is possible to lead the heat occurring by operation efficiently to outside by bringing a heat conductor 6 into direct contact therewith. It also

becomes possible to cut a plated lead, using this opening 3.

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Notes:

1. Untranslatable words are replaced with asterisks (*).
2. Texts in the figures are not translated and shown as it is.

Translated: 01:29:33 JST 03/14/2007

Dictionary: Last updated 02/09/2007 / Priority:

FULL CONTENTS

[Claim(s)]

[Claim 1] Structure of a circuit board where the circuit board of the semiconductor device back part mounted is characterized by having puncturing of a size which can hold the semiconductor device concerned in the circuit board which mounts a semiconductor device.

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the structure of a circuit board.

[0002]

[Description of the Prior Art] Drawing 2 is the sectional view showing the structure of the circuit board by the conventional technology. It is the wire bonding by which the circuit board in which 1 mounts a semiconductor device, and 2 connect an integrated circuit element, and 4 connects the integrated circuit 2 with the circuit board 1. What is called COB technology to which the bare chip of the direct integrated circuit element 2 is fixed on the circuit board 1, these both are connected to by wire bonding, and a circuit is connected is used in order to perform the case where mounting height has restriction, and high-density mounting.

[0003]

[Problem to be solved by the invention] When the conventional technology performs COB, the circuit board which carries an integrated circuit element makes polymer materials, such as glass epoxy, the charge of a main material from various restrictions in many cases. However, the substrate of these polymer material systems has low thermal conductivity, and when COB mounting of the big integrated circuit element of generation of heat is carried out, it has the technical problem that it leads to the reliability fall of the terminal area by the heat which self generates, as a result an element's own destruction.

[0004] Moreover, in order for good conditions to perform COB with a golden wire, there is the necessity of gold-plating sufficient thickness for the circuit board side by electrolytic plating, in many cases. When actually using it, a plating bar must be cut and each must be made to become independent although it is necessary to prepare the lead for plating then. Although giving Zagury conventionally to a circuit board for this purpose, and cutting a plating bar at the time of this Zagury processing is often performed, high accuracy is required, and Zagury processing will become very expensive, and will also have the technical problem that it is hard to lower the expense of a circuit board.

[0005]

[Means for solving problem] Structure of a circuit board of mounting the semiconductor device of this invention is characterized by having puncturing of the size for which the circuit board of the semiconductor device back part mounted can hold the semiconductor device concerned.

[0006]

[Working example] Drawing 1 is the sectional view showing the structure of the circuit board by this invention. 3 is puncturing

of the size which fault does not produce to carry the integrated circuit element 2 on the circuit board 1. It is the good heat conduction object which 5 contacts a plastic molding and contacted 6 for the integrated circuit element 2 directly. A part of heat produced when the integrated circuit element 2 operates gets across to the circuit board 1, and a part is told outside by a convection and radiation. However, most heat to generate can tell heat from the integrated circuit 2 efficiently to the exterior with the good conductor 6 of the heat which was able to be done in the integrated circuit 2 in the metal currently touched directly, a heat pipe, etc. Drawing 3 is the sectional view showing the structure at the time of using this invention for the circuit board 1 to which Zagury was given. 7 is Zagury who prepared from the necessity for restriction of mounting height, or plating bar cutting. Generation of heat of the integrated circuit 2 can be drawn outside with puncturing 3 and the heat conduction object 6 like the example of drawing 1. Drawing 4 is the sectional view of structure which used this invention. 8 is a plating bar for applying the elasticity gold plate for bonding to a circuit board. Since a plating bar 8 is cut by the heat which processes the puncturing 3 prepared in the circuit board 1, the same effect as performing plating bar cutting is acquired by Zagury.

[0007]

[Effect of the Invention] Since it can mount exposing a part of integrated circuit by using this invention, a lot of generation of heat especially produced by operation of the big high-speed operation element of generation of heat, DRAM, etc. can be effectively drawn to the exterior. Therefore, destruction of the element by heat can be prevented and it becomes possible by a rise in heat being controllable enough to raise the reliability of a terminal area by leaps and bounds. Moreover, in proportion to Zagury, since it is inexpensive, the perforation processing which builds puncturing can obtain the substrate from which the plating bar was cut with budget prices.

[Brief Description of the Drawings]

[Drawing 1] The sectional view showing the structure of the circuit board by this invention.

[Drawing 2] The sectional view showing the structure of the circuit board by the conventional technology.

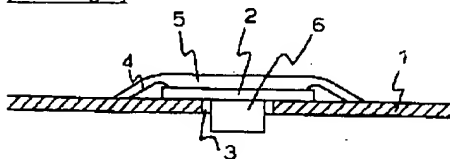
[Drawing 3] The sectional view showing the structure of the circuit board by this invention.

[Drawing 4] The sectional view showing the structure of the circuit board by this invention.

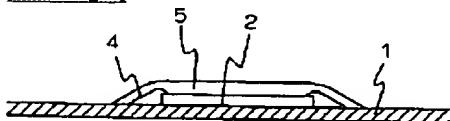
[Explanations of letters or numerals]

- 1 Circuit Board
- 2 Integrated Circuit
- 3 Puncturing
- 4 Wire Bonding
- 5 Plastic Molding
- 6 Heat Conduction Object
- 7 Zagury
- 8 Plating Bar

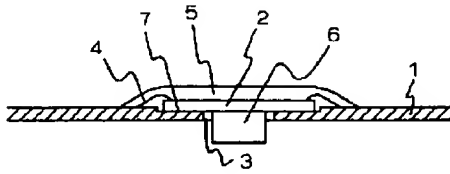
[Drawing 1]



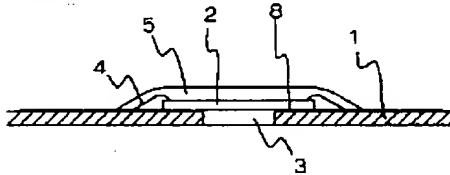
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]